CLAIMS:

1.   A device for combined display of a current image (A) of an object (8), which is located in a path network (9), and a map image (B) of the path network (9), the device containing a data-processing system (5) that is arranged

a)   in a map image (B) to identify the path network by segmentation;

b)   to calculate from the segmentation result auxiliary information (D) and archive it in the memory of the data-processing system, from which a transformation (Q) that brings the object and path network into register can be determined in real time for every possible position of an object in the image;

c)   from the current image (A) to segment a relevant object (8) that is located in the path network (9);

d)   using the auxiliary information (D), to determine transformations (Q) of the map image (B) and of the current image (A), so that, when the transformed map image (Q(B)) is superimposed on the transformed current image (A), the image of the object (8) comes to lie in the path network of the transformed map image.

2.   A device as claimed in claim 1, characterized in that the auxiliary information includes a distance image (D) in relation to the path network (9), which is obtained from the particular map image (B) by a distance transformation (D).

3.   A device as claimed in claim 2, characterized in that the data-processing system (5) is arranged

b1)   to determine the position of the image of the object (8) in the current image (A);

c1)   for the position corresponding thereto in the distance image (D), to determine the shortest displacement leading into the path network (9);

c2)   to identify a transformation (Θ) of the map image (B) and/or of the current image (A) that includes the determined displacement.

4.   A device as claimed in claim 1, characterized in that the determined transformations (Θ) include a translation, a rotation and/or a scaling.

5.   A device as claimed in claim 1, characterized in that the data-processing
system (5) is arranged during segmentation of the path network (9) in the map image (B) to assign to each pixel a probability that it belongs to the network (9).

6.   A device as claimed in claim 1, characterized in that it comprises an imaging arrangement, especially an X-ray apparatus (4) and/or an MRI apparatus, for recording the
current image (A) and optionally the map image (B).

7.   A device as claimed in claim 1, characterized in that it comprises a memory (6) for storing a number of map images (B), which are categorized according to a varying state of the path network (9).

8.   A device as claimed in claim 1, characterized in that it comprises a sensor device (3) for detecting at least one parameter that describes a varying state of the path network (9), preferably for detecting an electrocardiogram and/or the respiratory cycle.

9.   A device as claimed in claim 6, characterized in that the data-processing system (5) is arranged to select from the memory (6) a map image (B) of which the associated state of the path network (9) is the best possible match for the state of the path network (9) during the current recording (A).

10.   A device as claimed in claim 1, characterized in that it contains a display device (10) and the data-processing system (5) is arranged to display on the display device (10) the transformed map image (Θ(B)) superimposed entirely or in sections on the transformed current image or a section thereof.

11.   A method for combined display of a current image (A) of an object, which is located in a path network (9), and a map image (B) of the path network (9), comprising the following steps:
a)   segmentation of the path network in the map image;
b)   calculation and storage of auxiliary information from the segmentation result,

wherein for every possible position of an object in the image a transformation that brings the object and path network into register can be determined in real time from the auxiliary information;

c)   segmentation of a relevant object that is located in the path network from the current image;

d)   determination of transformations of the map image and of the current image using the auxiliary information, so that, when the transformed map image and the transformed current image are superimposed, the image of the object comes to lie in the path network of the transformed map image.